

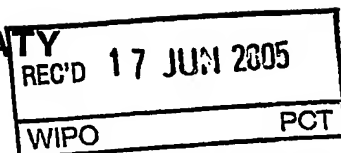
# PATENT COOPERATION TREATY


## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

**AMENDED IPR**  
(PCT Article 36 and Rule 70)



Applicant's or agent's file reference WO 800316-MP/co		<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/NL2004/000186		International filing date (day/month/year) 16.03.2004		Priority date (day/month/year) 17.03.2003
International Patent Classification (IPC) or national classification and IPC B03B5/60, B03B5/64, B03B5/36, B03B5/28				
<b>CORRECTED VERSION</b>				
Applicant TECHNISCHE UNIVERSITEIT DELFT et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 1 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  14.10.2004		Date of completion of this report  16.06.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Leitner, J Telephone No. +49 89 2399-7924		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000186

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

2-16 as originally filed

1 received on 04.05.2005 with letter of 03.05.2005

**Drawings, Sheets**

1/1 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000186

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**Re Item V.**

**1 Prior Art**

Reference is made to the following documents:

D1 : DE 11 19 191 B (THEODOR EDER DR) 14 December 1961 (1961-12-14)  
D2: DE 43 09 326 A (PAGENKOPF INGEBORG DR) 22 Sep. 1994 (1994-09-22)  
D3: US-A-2 854 136 (GILLIE PERCY H) 30 September 1958 (1958-09-30)

**2 INDEPENDENT CLAIM 15**

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 15 is not inventive in the sense of Article 33(3) PCT.

Document D1 discloses (the references in parenthesis applying to this document):  
an apparatus for the separation of particles comprising:  
a vessel (1, 22) provided with baffles (21) radiating from a shaft (19), placed,  
concentrically in the vessel, in a direction to a circumferentially placed wall (22) of the  
vessel,  
and at least two collecting means (7, 8) at the bottom of the vessel having their own  
discharge means (figures 2, 4).

The subject matter of claim 15 **differs** therefrom in that there are at least 10 baffles  
provided in the vessel. In document D1 it is not explicitly described how many baffles  
are provided.

In the example described in column 5, line 67 to column 6, line 26, which describes a  
simplified form of the apparatus, it is stated that for moving the fluid there must be a  
sufficient number of baffles (nicht zu spärliche Anordnung von Lamellen). Although  
these baffles (Lamellen) are foreseen for moving the fluid, they are there in this  
apparatus for the separation of particles of D1. Claim 15 of the present application  
does not describe the spatial arrangement of the baffles sufficiently in order to

distinguish them from the "Lamellen" of D1.

In connection with this simplified form of the apparatus, it is disclosed that with this partly limited fluid columns only modest results can be achieved (column 6, lines 17 - 26). So it is clear that with a vessel provided with baffles like the "Begrenzungswände" (21) better results can be achieved.

From the starting point, with a vessel having no separation baffle where only modest results can be achieved, to a vessel with a certain amount of separation baffles where the separation results become better, for the skilled person it would be a normal design option during the routine experimental designing procedure to choose the most appropriate number of baffles to achieve at the best separation results, depending on the material of the particles to be separated. He would consider also 10 or more baffles, there can be seen no reason during an experimental designing procedure to stop at for instance eight baffles.

### **3 INDEPENDENT CLAIM 1**

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not inventive in the sense of Article 33(3) PCT.

Document D1 discloses (the references in parenthesis applying to this document): a method of separating a particle fraction from a particle stream in a fluid in a container under the influence of gravitational force based on difference in vertical velocity (see column 4, line 56 to column 5, line 38), wherein the fluid and the particles are moved in a substantially horizontal direction defining a relative direction of movement, and respective particle fractions are collected in respective collecting means, and baffles, are provided for causing movement of the fluid.

In document D1 it is not explicitly described how far the baffles are placed from each other.

It depends on the material to be separated how far these particles spread out. If the

particles spread out rather far, it may be even sufficient to provide two, three or any small number of baffles, which is in any case disclosed by D1. For certain kinds of particles the condition of the characterizing portion of claim 1 is automatically fulfilled by using the apparatus of D1, irrespective how many separation baffles are present in the vessel.

The same conclusion must be drawn as above for claim 15, the skilled person would choose the most appropriate number of baffles to achieve at the best separation results, depending on the material of the particles to be separated.

#### **4 DEPENDENT CLAIMS 2-14, 16**

The features of the dependent claims 2-14 and 16 are either known from the documents D1 - D3 cited in the International Search Report for the same purpose as in the present application or lie within the general knowledge of the skilled person, they do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33 (3) PCT).

Our ref.: WO 800316-MP

International patent application PCT/NL2004/00186

**AMENDED MAIN CLAIM**

1. A method of separating a particle fraction from  
5 a particle stream, wherein the particles of the particle  
stream are separated in a fluid in a container under the  
influence of gravitational force based on difference in  
vertical velocity, wherein the fluid and the particles are  
moved in a substantially horizontal direction defining a  
10 relative direction of movement, and wherein at a first  
location a first particle fraction is collected, and at a  
second location somewhat removed from the first location, a  
second particle fraction is collected in respective  
collecting means, wherein baffles are provided for causing  
15 the fluid to move in the relative direction of movement,  
**characterised** in that the baffles are placed maximally 3,  
preferably maximally 2 and most preferably less than 1 x the  
diameter of spread of the particles that spread out the most  
of the particle fraction spreading out the most.